

REMARKS

Responsive to the Office Action mailed September 28, 2004, please enter the amendments made herein and reconsider the merits of the application in view of the following remarks.

Anticipation Rejection by GB 1,503,708

Claims 1, 3, 5-10, 12, 14, 16-18 and 21 stand rejected as allegedly anticipated by Patent No. GB 1,503,708 (“the ‘708 patent”). In view of the amendments made herein, Applicant respectfully submits that the anticipation rejection is now overcome.

Obviousness Rejection over Uchida in view of Tajima

Claims 1-2, 4-8, 12-14 and 16-20 stand rejected as allegedly obvious over EP 641 059 to Uchida et al. (“Uchida”) in view of U.S. Patent No. 6,445,100 to Tajima et al. (“Tajima”). In this regard, the Examiner states that “Uchida does not teach that the end sections have ‘an area of enlarged width’.” Office Action, page 4. The Examiner cites Tajima for allegedly curing this deficiency.

Applicant respectfully disagrees with the basis for this rejection. Modifying Uchida in view of Tajima would be contrary to the principles disclosed in Tajima. A combination as suggested by the Office would also render the device of Uchida unsuitable for its intended purpose.

Uchida is directed to a rotor for a synchronous motor. Referring to Fig. 1B, Uchida discloses rotor 10 having several permanent magnets 14 disposed around shaft 12 and several laminated core members 16 disposed between the permanent magnets.

Tajima is directed to permanent magnet dynamo electric machine. The reference discloses that centrifugal forces acting on the rotor and the magnets embedded in said rotor have to be balanced in order to obtain an equilibrium between the generated magnetic flux and the thickness of the rotor bridge encapsulating the magnet. Referring to Fig. 3, permanent magnet insertion holes 34 are formed in rotor 30 at positions where $R1/R0$ is equal or more than 0.85. See col. 4, lines 10-15. The reference adds "When the ratio $R1/R0$ is determined to be equal or more than 0.85, the centrifugal force caused by the permanent magnets 36 and the magnetic pole pieces 32B1 is reduced to less than 1/2 of the centrifugal force caused by the entire rotor 30, and the load which has to be borne by the bridge portion 32B3 is decreased." Col. 4, lines 24-29. Clearly, maintaining the ratio $R1/R0 \geq 0.85$ is a principle of Tajima's disclosure. This ratio dictates positioning the magnets circumferentially along the outer periphery of the rotor as shown in virtually every illustrative embodiment of Tajima.

Modifying Uchida in view of Tajima would be contrary to the principles disclosed in Tajima. Modifying the device shown in Fig. 1B of Uchida according to the principles of Tajima would require maintaining $R1/R0$ ratio to be equal or greater than 0.85 as disclosed by Tajima. In other words, permanent magnets 14 would have to be positioned circumferentially about the rotor. Such modification would be inconsistent with the disclosure and the illustrated embodiments of Uchida. Moreover, such modification would render the device of Uchida unsuited for its intended purpose as Uchida teaches diametrical positioning of the magnets within the rotor.

For these reasons, Applicant respectfully requests reconsideration and withdrawal of the obviousness rejection over Uchida in view of Tajima.

Obviousness Rejection over Obara in view of Tajima

Claims 1-2, 5-14 and 16-20 stand rejected as allegedly obvious over JP 2000-152534 to Obara et al. (“Obara”) in view of Tajima. The Examiner acknowledges that Obara fails to disclose end sections with an enlarged width. The Examiner cites Tajima for allegedly curing this deficiency.

Applicant respectfully disagrees with the basis for this rejection as the primary reference specifically teaches away from such modification.

Obara discloses that the rotor shown in Drawing 2 is a conventional rotor where fixed permanent magnets 22 are affixed to the peripheral face of an iron core 26. Referring to the embodiment of Drawing 2, the reference states that “the rotator of the permanent-magnet motor of drawing 2 had the fault of not using the surface area of a permanent magnet effectively.” Paragraph [0006]. To address this problem, Obara submits Drawing 1 which is “a rotator of eight poles” having a rotor core 16 and a shaft 15 as well as permanent magnets 11. See Paragraph [0013]. The permanent magnets are positioned diametrically within rotor 11.

As discussed, a principle of Tajima is the maintaining the ration $R1/R0 \geq 0.85$. In other words, R1 is at least 85% of the length of R0. This relationship dictates positioning the permanent magnets circumferentially as shown, for example, at Fig. 4 of Tajima. Referring to Drawing 2, Obara expressly teaches away from such magnet placements. Consequently, Obara cannot be modified as suggested by the Office.

For these reasons, Applicant respectfully requests reconsideration and withdrawal of the obviousness rejection over Obara in view of Tajima.

Obviousness Rejection of Dependent Claims

Claims 11 and 15 stand rejected as allegedly unpatentable over various combinations of references cited.

Each of claims 11 and 15 depends from independent claim 1 which is deemed patentable for the reasons discussed above and claims 11 and 15 are deemed patentable at least by the virtue of their dependence from claim 1. Reconsideration and withdrawal of the obviousness rejection of claims 11 and 15 are respectfully requested.

CONCLUSION

Having addressed each and every issue raised by the Office, Applicant deems the application in condition for allowance and respectfully solicits a notice to this effect.

Although an extension of time is not deemed necessary, the Office is hereby requested and authorized to charge any extension of time fees, or any other fee required to maintain the application pending, against Deposit Account No. 04-1679 to Duane Morris LLP.

The Examiner is invited to contact the undersigned to discuss any issues pertaining to the instant application.

Respectfully submitted,



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